

The relationship between macroeconomic variables and small-and-medium-enterprises in Indonesia

Malik Cahyadin¹

¹) Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia
 E-mail: malikcahyadin@yahoo.com

Article Info

Article history:

Received : 30 December 2016
 Accepted : 14 March 2017
 Published : 1 April 2017

Keywords:

SME, macroeconomic variables, Granger causality, VECM

JEL Classification:

E2, O4, O17

DOI:

[10.20885/ejem.vol9.iss1.art5](https://doi.org/10.20885/ejem.vol9.iss1.art5)

Abstract

This study analyses the interaction between macroeconomic variables and indicators of small and medium enterprises (SME) in Indonesia. The analysed data include GDP, inflation, unemployment, poverty number, the number of SME business units, total SME employment, and SME investment. It uses Granger Causality Test and VECM. It suggests that macroeconomic variables and SME indicators have one causal direction. In addition, there are short term and long term relationships between macroeconomic variables and indicators of SME. The response of macroeconomic variables for indicators of SME takes 4.5-5 years to stabilize. Meanwhile, the contribution of SME to GDP indicator is likely to increase from quarter 1 to 64.

Abstrak

Penelitian ini menganalisis interaksi antara variabel makroekonomi dan indikator usaha kecil dan menengah (UKM) di Indonesia. Data penelitian meliputi PDB, inflasi, jumlah pengangguran, jumlah kemiskinan, jumlah unit usaha UKM, jumlah tenaga kerja UKM, dan nilai investasi UKM. Metode analisis data menggunakan Granger Causality Test and VECM. Hasil penelitian menunjukkan bahwa variabel makroekonomi dan indikator UKM di Indonesia mempunyai kausal satu arah. Selain itu, ada hubungan jangka pendek dan jangka panjang antara variabel makroekonomi dan indikator UKM. Respon variabel makroekonomi terhadap indikator UKM memerlukan waktu 4.5-5 tahun untuk stabil. Sementara itu, kontribusi indikator UKM terhadap GDP Indonesia cenderung meningkat dari kuartal 1 sampai 64.

Introduction

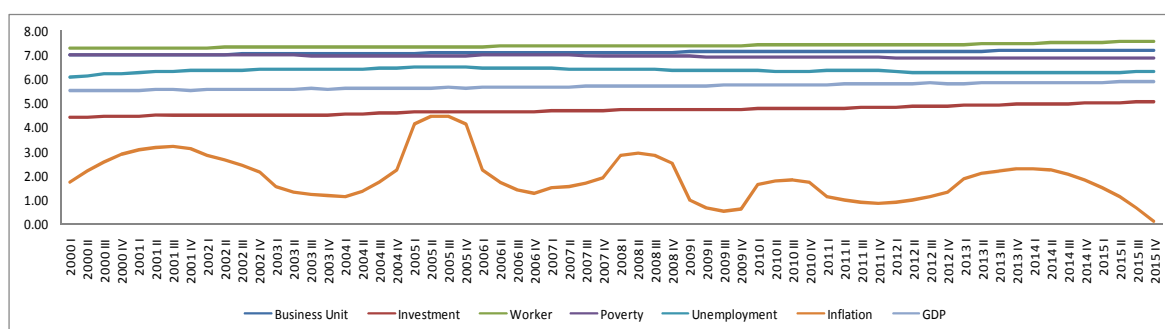
Small and Medium Enterprises (SME) have a substantial role in the Indonesian economy. It can be seen from several business indicators such as a number of business units, worker, and investment. The development of SME's indicators can be associated with macroeconomic variables such as GDP, inflation, unemployment, and poverty. Empirically, those have been proved by Beck, Kunt, & Levine (2004); OECD (2004); BVCA (2011); Savlovski & Robu (2011); Lawless, McCann, & Calder (2012); Gujarati (2013); and Robu (2013).

The development of SME's indicators and economic growth in Indonesia in the year of 2000 – 2015 tend to have the same direction. It was expected to be positive signal the contribution of SME to the Indonesian economy. Meanwhile, the development of SME's indicators and poor people tend to a different direction. It was expected to be positive signal the contribution of SME to poverty reduction in Indonesia. Those become strong motivation in exploring this study. Moreover, this study is expected to provide a bright spot of SME's substantial role in Indonesia economy. The innovation that will be done in this study compared to other studies on SME is the uses of causality methods (Granger Causality Test and Vector Auto Regression).

SME needs real support from government to develop a sustainable business. It can be realized in the form of policy and work program. In this context, MTI (2007) suggests that government should encourage high-growth both quantity and quality of new entrepreneurs of SME for creating sustainable jobs. However, the government also needs considering its effectiveness. Meanwhile, El-Saady (2011) recommends some important actions to the government such as a) the government or non-government organization has the duty of developing SME and innovative entrepreneurship; b) SME needs support and facility

for improving skill of business plan and finance to access financial sources; c) the government should give fiscal stimulus in the form business start-up, business growth, innovation and business transfer; d) innovation and entrepreneurship are integrated part in creating sustainable jobs. Other studies have supported MTI (2007) and El-Saady (2011) such as Şenturk et al. (2008); Tambunan (2008); Uma (2013); and SICCI (2014).

This study uses secondary data from SME's indicators and macroeconomic variables of Indonesia from 2000-2015. The SME's indicators were represented by a number of the business unit, the value of the investment, and the number of workers. Meanwhile, the macroeconomic variables were represented by the value of GDP, rate of inflation, the number of unemployment, and the number of poverty. Those are obtained from CBS (Central Bureau of Statistics) of Indonesia, and Ministry of SME and Cooperation of Indonesia. The development of SME's indicators and macroeconomic variables of Indonesia can be seen in Figure 1.



Source: CSB and Ministry of SME and Cooperation of Indonesia (Processed)

Note: All variables are created in the form "log", except inflation rate.

Figure 1. The development of SME indicators and macroeconomic variables of Indonesia, 2000-2015 (%)

Figure 1 illustrates that the SME indicator tends to grow with positive trends. The development of macroeconomic variables has several conditions, namely: GDP growth is likely to be above 5%, poverty and unemployment tend to be above 6%, while inflation is likely to be in the range of 1 to 4.5% with a downward trend. This condition needs to be studied further to understand the interaction between SME indicators and macroeconomic variables in Indonesia. The results of these interactions are expected to be one of the considerations of how Indonesia's macroeconomic contribution to the development of SME and vice versa. Thus, the formulation of the problem of this research is the interaction between macroeconomic variables and indicators of SME in Indonesia.

Research Method

The research data was using secondary data published by the CBS (Central Bureau of Statistics) of Indonesia, and Ministry of SME and Cooperation of Indonesia. The data includes GDP, inflation, unemployment, poverty, the number of business units SME, SME investment value, and the amount of labor SME. Research data period are quarterly 2000-2015 year (a total of 64 series). The data are in log form with % as the unit, but inflation has been in the form of %. The quarterly data are calculated using interpolation formula that refers to Sutherland (2014).

Research methods use Granger causality test and VECM (Vector Error Correction Model). The Granger causality test refers to White & Pettenuzzo (2010). Meanwhile, the VECM method refers to Gaffeo & Santoro (2009); Mukorera & Mahadea (2014).

Results and Discussion

Unit root test

The first step in the analysis of time series is testing unit root. It is intended to identify and ensure that the data used is going to be in normal distribution and yield parameters/best estimates and are not biased. Unit root test results show that all the variables in this study are the 2nd stationary difference. It means that all variables in this study can be used for the analysis of time series. Explanation of the unit root test results can be seen in Table 1.

Table 1. Result of unit root test

Variables	t statistics ADF	McKinnon Critical Value	Unit Root Test
D(INF)	-5.896632	-4.137279 -3.495295 -3.176618	Stationary*
D(LOGGDP)	-42.47403	-4.121303 -3.487845 -3.172314	Stationary*
D(LOGINV)	-4.365363	-4.140858 -3.49696 -3.177579	Stationary*
(LOGWORKER)	-4.358656	-4.137279 -3.495295 -3.176618	Stationary*
D(LOGPOV)	-6.470612	-4.124265 -3.489228 -3.173114	Stationary*
D(LOGSME)	-7.101339	-4.137279 -3.495295 -3.176618	Stationary*
D(LOGUE)	-7.849957	-4.124265 -3.489228 -3.173114	Stationary*

Source: Secondary Data (processed)

Note: a) INF=inflation, LOGINV=log investment value of SME, LOGPOV=log number of poverty, LOGSME=log number of SME, LOGUE=log number of unemployment; b) * stationary significant of 1% at 2- difference; c) lag = 3

Optimal lag

The analysis of the optimal lag was conducted to determine the extent of the time period (to the back) in the role of the studied variable. Several methods can be used to determine the optimal lag is FPE, AIC, SC, and HQ. Indications that can be used as a reference in determining the optimal lag is the value of each of these methods tend to be small.

Table 2. Result of optimal lag

Lag	LogL	LR	FPE	AIC	SC	HQ
0	793.7795	NA	1.48E-20	-25.79605	-25.55382	-25.70112
1	1520.528	1262.874	3.34E-30	-48.01731	-46.07946*	-47.25785
2	1614.087	141.1046*	8.24e-31*	-49.47825*	-45.84478	-48.05426*

Note: a) * indicates lag order selected by the criterion; b) FPE=Final prediction error, AIC=Akaike information criterion, SC=Schwarz information criterion, HQ: Hannan-Quinn information criterion

Table 2 provides an explanation of the optimal lag results that are lag 2. The determination of lag is based on two things: the recommendation E-Views software, and the value of each estimation methods which tend to start to decline. Therefore, subsequent analysis phase through the Granger Causality Test will use the lag 2.

Granger causality test

Granger Causality Test was used to analyze the interaction/causal between the variables. This method is used because the relationship between the variables in the study was based on standard economic theory. The results of this test will explain three things, namely: inter variables have a causal one-way, two-way, or no causal.

Table 3 describes the results of Granger causality test. Based on the table it can be seen that GDP becomes causal for inflation in one direction. This means the value or level of Indonesia's GDP may cause a degree of inflation that occurred. GDP does not have a causal against poverty in Indonesia, and vice versa. This means the value or level of GDP Indonesia does not cause the amount or level of poverty. These conditions provide the information that the GDP of Indonesia is not able to influence the decrease of po-

verty in Indonesia significantly. GDP becomes causal against unemployment in Indonesia in one direction. This means the value or level of Indonesia's GDP may cause a reduction in the amount or level of unemployment that occurs. Thus, the GDP of Indonesia has the ability as an indicator of a deduction from the amount of poverty in Indonesia.

The number of SME business units becomes causal to the GDP of Indonesia in one direction. This means that the presence of SME in Indonesia plays an important role in establishing the value of GDP Indonesia. GDP becomes causal to the SME investment in Indonesia in one direction. This means that the value or level of GDP Indonesia is vital to the effort in increasing SME investment in Indonesia.

Inflation becomes causal towards SME investment in Indonesia in one direction. This means that the inflation rate is taken into consideration for businessmen to invest in SME. Employment of SME becomes causal to inflation in Indonesia in one direction. This means that the SME amount of labor can become a driving force the inflation rate in Indonesia. However, it should be studied further the transmission of the causal mechanism between SME workforce with inflation in Indonesia.

Table 3. Result of Granger causality test

Variables	Causality	Significant
LOGGDP to INF	one way	10%
LOGGDP to LOGPOV	no causality	-
LOGGDP to LOGUE	one way	5%
INF to LOGPOV	one way	1%
LOGSME to LOGGDP	one way	10%
LOGGDP to LOGINV	one way	10%
INF to LOGINV	one way	1%
LOGWORKER to INF	one way	5%

Note: lag= 2

Cointegration test

Cointegration test is intended to identify and analyze the integration of variables that had a stationary same level. Cointegration test results became the basis for the subsequent analysis method. This means that the results will be a reference for selecting VECM method as a method of analysis.

Table 4. Result of cointegration test

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	250.841	139.2753	97.57615	49.58633	0.0000
At most 1 *	153.2649	107.3466	47.35783	43.41977	0.0000
At most 2 *	105.907	79.34145	41.31385	37.16359	0.0001
At most 3 *	64.59317	55.24578	32.12342	30.81507	0.0060

Note: * denotes rejection of the hypothesis at the 0.05 level

Table 4 gives information that there are four cointegration results of the variables studied. How to see the results of cointegration are: information provided by the software E-Views (marked *) and the value of the probability is smaller than α (1% and 5%). Based on the results of this cointegration then the analysis of the interaction of macroeconomic variables and of SME in Indonesia will be using VECM.

VECM

VECM an estimation model used to analyze the interaction among variables with the requirements of the existence of cointegration among variables. VECM estimation results provide two pieces of information, namely: estimates of short-term and long-term estimates. VECM estimation results in the short term can be seen in Table 5.

Based on Table 5, it could be explained that the variables that significantly influence the GDP of Indonesia is a constant (positive), GDP lag 2 (negative), inflation lag 2 (positive), investment of SME lag 1 (positive), investment of SME lag 2 (negative), amount of labor of SME lag 1 (positive), the number of unemployed lag 1 (positive), and the number of unemployed lag 2 (negative). The variables that signifi-

cantly influence the Indonesian inflation is GDP lag 1 (positive), and the GDP lag 2 (positive). The variables that significantly influence of SME investment in Indonesia is the of SME investment lag 1 (positive).

Table 5. VECM estimation in the short-run

Error Correction:	D(DLOGGDP)	D(DINF)	D(DLOGINV)	D(DLOGLABOR)	D(DLOGPOV)	D(DLOGSME)	D(DLOGU)
CointEq1	-0.784148 (0.20251)	-34.59524 (11.43740)	-0.037342 (0.16697)	-0.048019 (0.07701)	0.070867 (0.15177)	-0.020156 (0.02753)	-0.568534 (0.27033)
D(DLOGGDP(-1))	[-3.87217] -0.068955 (0.16721)	[-3.02473] 24.28399 (9.44409)	[-0.22365] 0.074938 (0.13787)	[-0.62355] 0.036875 (0.06359)	[0.46693] -0.057035 (0.12532)	[-0.73213] -0.002238 (0.02273)	[-2.10309] 0.421041 (0.22322)
D(DLOGGDP(-2))	[-0.41237] -0.267346 (0.13979)	[2.57134] 12.78923 (7.89501)	[0.54356] -0.004538 (0.11525)	[0.57991] 0.009599 (0.05316)	[-0.45511] -0.046364 (0.10476)	[-0.09844] 0.003842 (0.01900)	[1.88623] 0.171382 (0.18660)
D(DINF(-1))	[-1.91252] -0.01067 (0.00650)	[1.61991] 0.092015 (0.36696)	[-0.03937] -0.006374 (0.00536)	[0.18058] -0.001904 (0.00247)	[-0.44256] 0.001438 (0.00487)	[0.20216] -1.30E-05 (0.00088)	[0.91843] -0.003617 (0.00867)
D(DINF(-2))	[-1.64230] 0.019505 (0.00761)	[0.25075] 0.385175 (0.42952)	[-1.18978] 0.000191 (0.00627)	[-0.77052] 0.000987 (0.00289)	[0.29532] -0.002123 (0.00570)	[-0.01475] 0.000238 (0.00103)	[-0.41698] 0.004421 (0.01015)
D(DLOGINV(-1))	[2.56478] 1.012453 (0.52942)	[0.89675] 20.56933 (29.90110)	[0.03050] 0.915263 (0.43650)	[0.34114] 0.167711 (0.20133)	[-0.37244] -0.043922 (0.39678)	[0.23008] 0.007832 (0.07197)	[0.43551] 0.243919 (0.70674)
D(DLOGINV(-2))	[1.91237] -1.638902 (0.61481)	[0.68791] -27.16964 (34.72390)	[2.09681] -0.090773 (0.50691)	[0.83303] -0.031671 (0.23380)	[-0.11070] 0.281614 (0.46078)	[0.10881] 0.004516 (0.08358)	[0.34513] -0.201638 (0.82073)
D(DLOGLABOR(-1))	[-2.66570] 1.817679 (0.69910)	[-0.78245] 34.12964 (39.48450)	[-0.17907] 0.439422 (0.57640)	[-0.13546] 0.765186 (0.26585)	[0.61117] -0.072236 (0.52395)	[0.05404] -0.006411 (0.09504)	[-0.24568] 0.415766 (0.93325)
D(DLOGLABOR(-2))	[2.60002] -1.126364 (0.73312)	[0.86438] -18.68802 (41.40600)	[0.76235] -0.362275 (0.60445)	[2.87824] 0.095548 (0.27879)	[-0.13787] 0.312721 (0.54945)	[-0.06746] -0.015444 (0.09967)	[0.44550] 0.207229 (0.97866)
D(DLOGPOV(-1))	[-1.53639] 0.246673 (0.26773)	[-0.45134] -1.714853 (15.12100)	[-0.59934] 0.023568 (0.22074)	[0.34273] 0.02704 (0.10181)	[0.56916] 0.435167 (0.20065)	[-0.15496] 0.00083 (0.03640)	[0.21175] -0.015394 (0.35740)
D(DLOGPOV(-2))	[0.92135] -0.193125 (0.24611)	[-0.11341] -7.116705 (13.89980)	[0.10677] -0.151632 (0.20291)	[0.26559] -0.001443 (0.09359)	[2.16876] 0.101405 (0.18445)	[0.02281] 0.003925 (0.03346)	[-0.04307] 0.041231 (0.32853)
D(DLOGSME(-1))	[-0.78472] -1.193895 (1.25675)	[-0.51200] -2.632211 (70.97990)	[-0.74728] -0.08652 (1.03618)	[-0.01541] -0.108375 (0.47791)	[0.54977] 0.213523 (0.94189)	[0.11732] 0.519117 (0.17085)	[0.12550] 0.214711 (1.67767)
D(DLOGSME(-2))	[-0.94998] 0.970323 (1.14401)	[-0.03708] -7.699586 (64.61210)	[-0.08350] -0.001475 (0.94322)	[-0.22677] 0.211958 (0.43504)	[0.22670] 0.585138 (0.85739)	[3.03843] 0.199133 (0.15552)	[0.12798] -0.437608 (1.52716)
D(DLOGU(-1))	[0.84818] 0.391926 (0.19867)	[-0.11917] 5.93542 (11.22080)	[-0.00156] 0.126265 (0.16380)	[0.48722] 0.050882 (0.07555)	[0.68247] -0.006934 (0.14890)	[1.28040] 0.005982 (0.02701)	[-0.28655] 0.556283 (0.26521)
D(DLOGU(-2))	[1.97273] -0.482966 (0.18386)	[0.52897] -8.527574 (10.38440)	[0.77084] -0.111044 (0.15159)	[0.67348] -0.028219 (0.06992)	[-0.04657] 0.09077 (0.13780)	[0.22149] 0.005806 (0.02500)	[2.09751] 0.096681 (0.24544)
C	[-2.62677] 0.011818 (0.00576)	[-0.82119] -0.227893 (0.32534)	[-0.73251] 0.000742 (0.00475)	[-0.40359] -0.001029 (0.00219)	[0.65871] -0.006395 (0.00432)	[0.23229] 0.000903 (0.00078)	[0.39390] -0.006149 (0.00769)
	[2.05165]	[-0.70047]	[0.15630]	[-0.46987]	[-1.48131]	[1.15277]	[-0.79960]

Note: t-statistics in []

The variables that significantly influence of SME employment in Indonesia is a labor of SME lag 1 (positive). Variables that have a significant effect on poverty in Indonesia is poverty lag 1 (positive). The variables that significantly influence the number of SME business unit in Indonesia is the number of SME business units lag 1 (positive). The variables that significantly influence the unemployment in Indonesia is a lag GDP 1 (positive), and the unemployment lag 1 (positive).

Table 6 describes the VECM estimation results in the long term. Based on the table it can be seen that all variables (inflation, investment of SME, of SME labor, poverty, the number of SME business unit, and unemployment) significantly affects the GDP of Indonesia. Inflation has a positive influence on GDP.

This means that the inflation rate will increase the value of Indonesia's GDP. The SME investment has a negative effect on GDP. This means that the increase in the value of investments of SME will affect the value of Indonesia's GDP. In this case, it needs to be a further research to explore the mechanism of the effect of SME investment to GDP Indonesia.

The number of labor SME has a positive influence on GDP. This means that the increase in the amount of labor SME affects the increase in the value of GDP Indonesia. A number of the poor population has a positive influence on GDP. It means that the increase in the number poor people affects the increase in the value of Indonesia's GDP. In this case, there needs to be further research to explore the mechanism of the effect of the number of poor people to GDP Indonesia.

The number of SME business unit negative effect on GDP. It means that the increase in the number of business units SME contributed to the declining value of Indonesia's GDP. In this case, there needs to be further research to explore the mechanism of the effect of the number of SME business units to GDP Indonesia. The number of unemployed has a positive influence on GDP. It means that the increase in unemployment resulted in increased GDP Indonesia. In this case, there needs to be further research to explore the mechanism of the effect of unemployment to GDP Indonesia.

Table 6. VECM estimation in the long-run

Variables	Coefficient	t-statistics
DINF(-1)	0.010496	6.23733
DLOGINV(-1)	-0.507641	-7.51216
DLOGWORKER(-1)	0.306868	3.85006
DLOGPOV(-1)	0.154657	3.39972
DLOGSME(-1)	-0.452247	-2.84053
DLOGUE(-1)	0.073519	2.70149

Note: DLOGGDP (1) is dependent variable

Impulse response function (IRF)

IRF is used to analyze the response among variables based on the direction and adjustment time. Directions mean response variable movements can be positive or negative. Meanwhile, the time adjustment means a certain period required by the study variables to move stably.

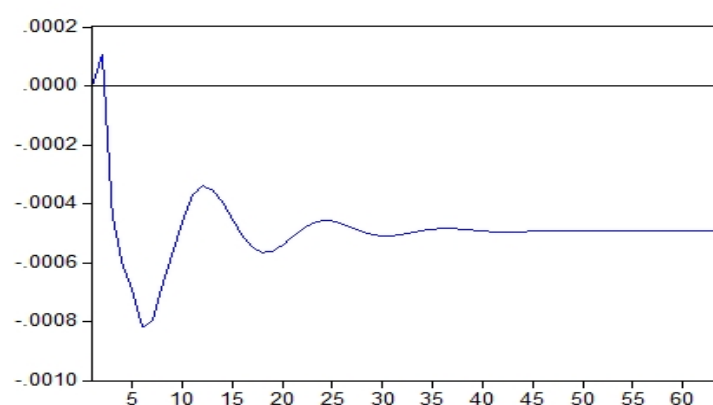


Figure 2. The response of DLOGGDP to Cholesky one S.D. DINF innovation

Figure 2 shows the response of GDP to inflation in Indonesia. In the first quarter until quarter 32 of these responses tend to fluctuate and stable after a quarter of 33. In addition, the response has a negative direction. This indicates that the response between GDP and inflation in Indonesia requires a relatively long time, namely 32 quarter or 8 years.

Figure 3 provides information on the GDP response SME investment in Indonesia. In the first quarter to 20 such responses tend to fluctuate and stable after quarter Directions 21. The response was positive. Thus, the response of GDP to SME investment in Indonesia requires a period of 5 years.

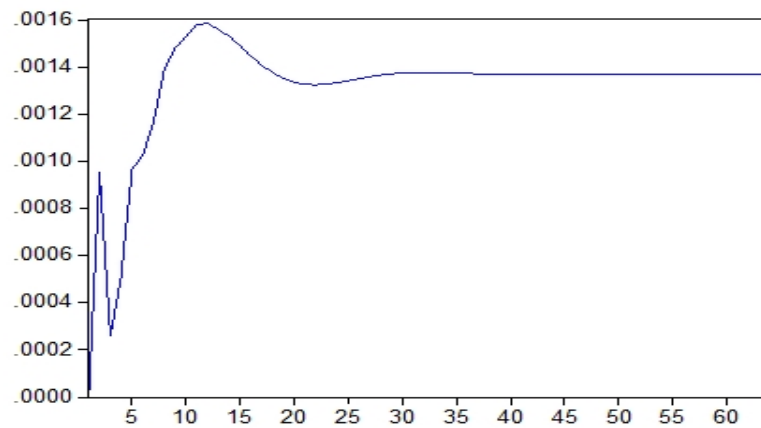


Figure 3. The response of DLOGGDP to Cholesky one S.D. DLOGINV innovation

Figure 4 illustrates the response of GDP to labor SME in Indonesia. In the first quarter to 18-second response, direction is negative while the quarter 19-64 positive response. Both positive and negative directions responses tend to be headed on line 0 (stable). This condition indicates that GDP and employment SME in Indonesia tend to be mutually supportive of one another.

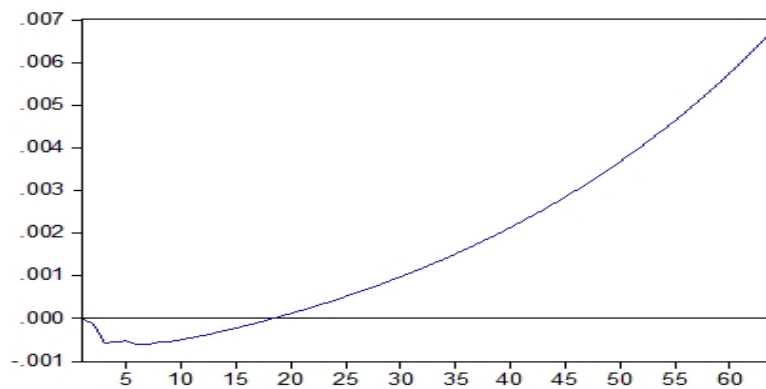


Figure 4. The response of DLOGGDP to Cholesky one S.D. DLOGWORKER innovation

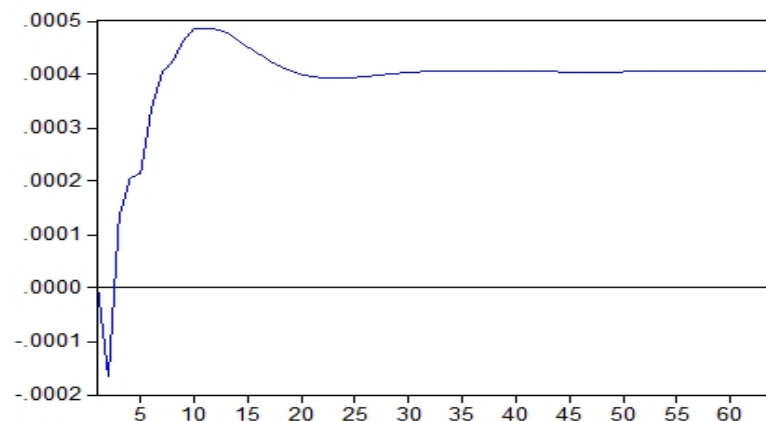


Figure 5. The response of DLOGGDP to Cholesky one S.D. DLOGPOV innovation

Figure 5 provides information on the number of responses GDP poor people in Indonesia. In the first quarter to 19 such responses tend to fluctuate and stable after a quarter of 20. This shows that response of GDP to the number of poor people in Indonesia can take 5 years.

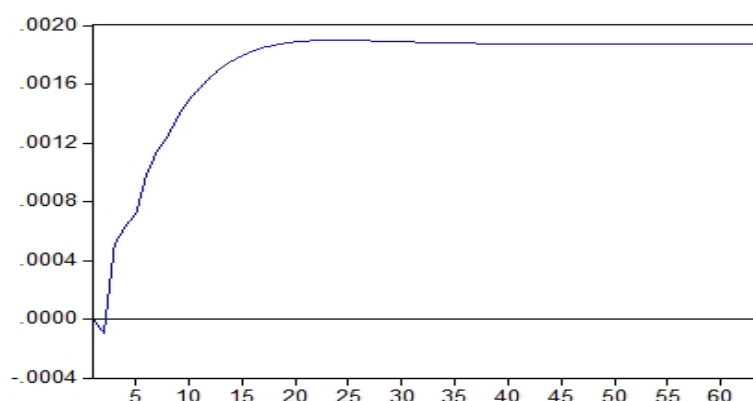


Figure 6. The response of DLOGGDP to Cholesky one S.D. DLOGSME innovation

Figure 6 provides information about the response of GDP to the number of SME business unit in Indonesia. Based on these images can be explained that in the 1st quarter GDP to 17 response to the number of SME business units tends to increase and unstable. Meanwhile, after an 18-quarter GDP response to the number of SME business units tend to be stable. This indicates that GDP and the number of SME business units in Indonesia take 4.5 years.

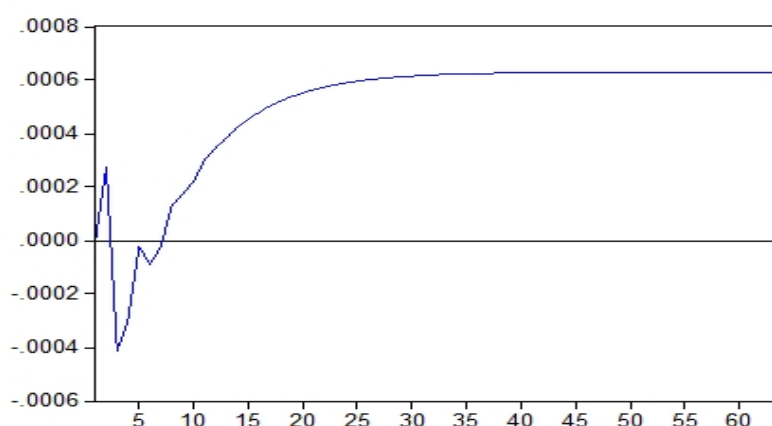


Figure 7. The response of DLOGGDP to Cholesky one S.D. DLOGUE innovation

Figure 7 indicates the response of GDP to the number of unemployment in Indonesia. Based on these images can be explained that in the 1st quarter GDP to 17 responses to unemployment tends to fluctuate. Meanwhile, after an 18-quarter GDP response to the number of unemployed in Indonesia tend to be stable. It means the response of GDP to unemployment takes 4.5 years.

Variance decomposition (VD)

VD is used to identify and analyze the contributions of variables in the study. Table 7 provides information about the contribution of inflation (DINF), investment SME (DLOGINV), labor SME (DLOGWORKER), the number of poor (DLOGPOV), the number of business units SME (DLOGSME), and unemployment (LOGUE) to GDP in Indonesia (DLOGGDP). The period of the contribution of each of these variables is 64 quarter.

Based on Table 7, it could be found that Indonesia inflation contribution to GDP in the 1st quarter amounted to 0% and increased to 22.85% in 64 quarters. The SME investment contribution to GDP Indonesia in the 1st quarter amounted to 0% and increased to 15:43 64% in the quarter. The SME amount of labor contribution to Indonesia's GDP in the 1st quarter amounted to 0% and increased to 9:42 64% in the quarter. The contributions of poor people on Indonesia's GDP in the 1st quarter amounted to 0% and increased to 0.03%, in the quarter of 64. While the contributions number of business units Indonesian SME to GDP in the 1st quarter amounted to 0% and to 0:39 64% in the quarter. Contributions unemployment to GDP Indonesia on quarter 1 is at 0% and increased to 13:32 64% in the quarter.

Table 7. Result of variance decomposition of GDP (%)

Period	S.E.	DLOGGDP	DINF	DLOGINV	DLOGWORKER	DLOGPOV	DLOGSME	DLOGUE
1	0.007993	100	0	0	0	0	0	0
2	0.008854	89.04492	0.29529	2.132738	3.467195	0.094397	0.190498	4.774965
3	0.009107	84.60422	1.320719	2.023462	6.408351	0.089294	0.263817	5.290139
4	0.009894	79.84286	2.752884	4.990624	6.390467	0.168086	0.44475	5.410324
5	0.010912	79.25321	3.010826	7.14885	5.52538	0.139549	0.433145	4.489038
6	0.011555	77.69234	3.502825	9.058951	5.192709	0.124468	0.420679	4.008033
7	0.012142	77.39992	3.817789	9.624741	4.898519	0.113693	0.440962	3.704374
8	0.012784	77.43288	3.998821	10.04692	4.609203	0.102607	0.443324	3.366247
9	0.01333	77.57361	4.147954	10.1567	4.470857	0.094968	0.441289	3.114626
10	0.013783	77.35241	4.40119	10.30247	4.442135	0.088945	0.449879	2.962967
11	0.014227	77.07965	4.670247	10.42438	4.385272	0.083587	0.465466	2.891397
12	0.014668	76.70904	4.960902	10.6521	4.285454	0.078685	0.478231	2.835586
13	0.015093	76.29135	5.267611	10.9131	4.155745	0.074561	0.488687	2.80895
14	0.015509	75.82799	5.589524	11.20715	4.002535	0.070874	0.496623	2.805302
15	0.015922	75.38766	5.904836	11.48848	3.83506	0.067607	0.500568	2.815781
16	0.016325	74.95313	6.220498	11.7588	3.668484	0.064704	0.500425	2.833953
17	0.016716	74.5189	6.540039	12.00246	3.509644	0.062161	0.497553	2.869239
18	0.017096	74.06984	6.866861	12.22862	3.359822	0.059843	0.492582	2.922431
19	0.017467	73.60265	7.200749	12.44032	3.219513	0.057737	0.485859	2.993176
20	0.017831	73.10728	7.544108	12.64527	3.089427	0.055809	0.477724	3.080384
21	0.018189	72.58293	7.896122	12.84435	2.970057	0.054048	0.468467	3.184027
22	0.018543	72.03048	8.25554	13.03935	2.862141	0.052427	0.458242	3.301821
23	0.018894	71.45309	8.620864	13.22909	2.766655	0.050942	0.447225	3.432137
24	0.019241	70.85228	8.991415	13.41279	2.684425	0.049581	0.435619	3.573889
25	0.019586	70.22995	9.366354	13.58914	2.616009	0.048331	0.423622	3.72659
26	0.019928	69.58696	9.745209	13.75783	2.561751	0.047181	0.411414	3.889649
27	0.020269	68.92384	10.1276	13.91867	2.52187	0.04612	0.399157	4.062751
28	0.020608	68.24073	10.51319	14.07189	2.496511	0.04514	0.386994	4.245549
29	0.020947	67.53812	10.9015	14.2177	2.485796	0.044233	0.375041	4.437613
30	0.021285	66.81664	11.29201	14.35636	2.48982	0.043393	0.363401	4.638369
31	0.021623	66.07721	11.68414	14.48799	2.508634	0.042616	0.352163	4.847244
32	0.021961	65.32086	12.07733	14.61264	2.542227	0.041895	0.341404	5.063645
33	0.0223	64.54878	12.47099	14.7303	2.590516	0.041228	0.331193	5.287003
34	0.022639	63.76212	12.86459	14.84096	2.653349	0.040609	0.321591	5.51678
35	0.02298	62.96206	13.25763	14.94463	2.730513	0.040036	0.31265	5.752476
36	0.023323	62.14973	13.64963	15.04136	2.821754	0.039505	0.304413	5.993611
37	0.023667	61.32624	14.04013	15.13121	2.926781	0.039013	0.296917	6.239713
38	0.024013	60.49272	14.42868	15.21426	3.045273	0.038557	0.29019	6.490317
39	0.024361	59.65029	14.81486	15.29062	3.176885	0.038134	0.284258	6.744961
40	0.024712	58.80006	15.19824	15.3604	3.321246	0.037742	0.279136	7.003187
41	0.025065	57.94316	15.57843	15.4237	3.477961	0.037379	0.274839	7.264545
42	0.02542	57.0807	15.95504	15.48063	3.646611	0.037043	0.271374	7.528597
43	0.025778	56.21378	16.32773	15.53133	3.826756	0.036732	0.268747	7.79492
44	0.02614	55.34347	16.69616	15.57592	4.01794	0.036444	0.266958	8.063104
45	0.026504	54.47082	17.06002	15.61453	4.219692	0.036178	0.266004	8.332757
46	0.026872	53.59684	17.41902	15.6473	4.43153	0.035933	0.265878	8.603498
47	0.027242	52.7225	17.77289	15.6744	4.652968	0.035707	0.266572	8.874962
48	0.027617	51.84875	18.1214	15.69597	4.883512	0.035498	0.268074	9.146801
49	0.027994	50.9765	18.46431	15.71217	5.122667	0.035306	0.27037	9.418679
50	0.028375	50.10662	18.80143	15.72317	5.369936	0.035129	0.273443	9.690276
51	0.02876	49.23994	19.13258	15.72913	5.624825	0.034967	0.277277	9.961288
52	0.029149	48.37725	19.45759	15.73023	5.886842	0.034818	0.281852	10.23143
53	0.029541	47.5193	19.77633	15.72663	6.155499	0.034681	0.287146	10.50042
54	0.029937	46.66681	20.08867	15.71851	6.430316	0.034556	0.293139	10.76801
55	0.030337	45.82043	20.39452	15.70604	6.710819	0.034442	0.299807	11.03395
56	0.03074	44.9808	20.69378	15.68939	6.996544	0.034338	0.307127	11.29802
57	0.031148	44.14849	20.9864	15.66874	7.287036	0.034243	0.315074	11.56002
58	0.031559	43.32405	21.27232	15.64426	7.581853	0.034157	0.323624	11.81973
59	0.031975	42.50799	21.55151	15.61612	7.880562	0.034079	0.332751	12.07699
60	0.032394	41.70075	21.82394	15.58449	8.182747	0.034009	0.34243	12.33163
61	0.032817	40.90277	22.08961	15.54954	8.488001	0.033945	0.352636	12.58349
62	0.033244	40.11444	22.34853	15.51143	8.795934	0.033888	0.363344	12.83244
63	0.033676	39.33609	22.60072	15.47032	9.106167	0.033837	0.374527	13.07834
64	0.034111	38.56805	22.8462	15.42637	9.418339	0.033792	0.386161	13.32109

Conclusion

This study concluded that Indonesian macroeconomic variables and indicators of SME have causal relationship. Nevertheless, GDP and the number of poor people in Indonesia did not have any causal relationship. Meanwhile, VECM analysis results showed the influence of macroeconomic variables and indicators of SME in both the short and long term. For example, Indonesia's GDP in the short term were influenced by inflation, investment SME, SME amount of labor, and the number of unemployed. The same thing happened to the influence of these variables on Indonesian GDP in the long term. IRF results showed that the response to macroeconomic variables and indicators of SME in Indonesia took 4.5-5 years to produce a stable response. VD results indicated that contribution of inflation, investment SME, SME amount of labor, the number of poor, and unemployment was likely to increase from quarter 1 to 64.

Recommendations of this study are that the Indonesian government and SMEs need to cooperate, collaborate and integrate to push SME's indicators for bringing up Indonesia economy. It can be done through some actions such as business cluster, integrated up streaming and down streaming of business channel, low-interest rate (under BI rate) for investment credit, and technology facilities. In addition, the Indonesian government and SMEs need to cooperate and agree taking a sustainable job creation in the long run. It can be done through improving SMEs capacity to absorb workers.

References

- Beck, T., Kunt, A.D., & Levine, R. (2004). SMEs, growth, and poverty: Cross-country evidence. *Journal of Economic Growth*, 10(3), 199-229.
- BVCA (British Venture Capital Association). (2011). *The role of entrepreneurs and SMEs in driving the recovery*. UK.
- El-Saady, R. (2011). *The role of SMEs in Mediterranean economies: The Egyptian experience SME unit*. Cairo: General Authority for Investment.
- Gaffeo, E. & Santoro, E. (2009, May). *Business failures, macroeconomic risk and the effect of recessions on long-run growth: A panel cointegration approach*. The Seminar at the Universities of Cambridge.
- Gujarati, R. (2013). The role of SMEs in the economic development. *Masters International Journal of Management Research and Development (MIJMRD)*, 1(1), 86-97.
- Lawless, M., McCann, F., & Calder, T. (2012, March). *SMEs in Ireland: Stylized facts from the real economy and credit market*. Conference paper presented at the Central Bank of Ireland conference, the Irish SME lending market: Descriptions, analysis, and prescriptions, March 2, 2012.
- MTI. (2007). *High-growth SME support initiatives in nine countries: Analysis, categorization, and recommendations*. Helsinki: Edita Publishing Ltd.
- Mukorera, S., & Mahadea, D. (2014). Linking entrepreneurial activity to economic meltdown in Zimbabwe. *Mediterranean Journal of Social Sciences*, 5(3), 42-50.
- OECD. (2004, June). *Promoting entrepreneurship and innovative SMEs in a global economy: Towards a more responsible and inclusive globalisation*. The 2nd OECD (Organisation for Economic Cooperation and Development) Conference of ministers responsible for Small and Medium-Sized Enterprises (SMEs). Istanbul, Turkey 3-5 June.
- Robu, M. (2013). The dynamic and importance of SMEs in economy. *The USV Annals of Economics and Public Administration*, 1(17), 84-89.
- Savlovski, L.I., & Robu, N.R. (2011). The role of SMEs in modern economy. *Economia: Seria Management*, 14(1), 277-281.
- Şentürk, C., Keskin, H., Kiriş, Y., Türköz, P., & Kiriş, H.M. (2008). *Can SMEs in developing countries resist crisis? An analysis of Turkish and Albanian Cases*. International Conference on Balkan Studies (ICBS). Retrieved from <http://dspace.epoka.edu.al/handle/1/190>.

- SICCI. (2014). *Enhancing SME development for economic growth and prosperity for Solomon Islands: Perspectives from the Solomon Islands chamber of commerce and Industry (SICCI)*. SICCI Working Paper. Solomon Islands. Retrieved from <http://www.aph.gov.au/DocumentStore.ashx?id=d95e5db0-fd3b-4632-8cd1-af3d5d73cfa6&subId=253350>.
- Sutherland, J.C. (2014). *Interpolation*. USA: University of Utah.
- Tambunan, T. (2008). SMEs development In Indonesia: Do economic growth and government support matter? *International Journal of Asia Pacific Studies*, 4(2), 111-133.
- Uma, P. (2013). The role of SMEs in economic development of India. *Asia Pacific Journal of Marketing & Management Review*, 2(6), 120-126.
- White, H., & Pettenuzzo, D. (2010). Granger Causality, Exogeneity, Cointegration, and Economic Policy Analysis. *Journal of Econometrics*, 178(P2), 316-330. Retrieved January 20, 2016, from http://www.brandeis.edu/departments/economics/RePEc/brd/doc/Brandeis_WP36.pdf.